Celebrate Safety
Skeet Range Interim Measure, Patrick Air Force Base, FL

U.S. Army Corps of Engineers
Cape/Patrick Resident Office
and
CH2M HILL Constructors, Inc.

Site Background

- Former Skeet/Firing Ra
  used from 1957 to 1999
  located within the family
  campground area
- Soil contaminated with
  lead, arsenic, polynuclea
  aromatic hydrocarbons & buried unknown lab chemicals
- Associated abandoned buildings in varying stages of disrepair
- Adjacent to a lagoon & canal

Scope of Work

- Site preparation activities
  - Subsurface utility & communication line clearanc
  - Installation of temporary fen with green fabric around site perimeter
  - Sensitive habitat protection

- Selective clearing & grubbing of brush/ vegetation in environmentally sensitive area
- Excavation, stockpiling, load-out & disposal of 9,358 yds^3 of contaminated non-hazardous soil & 380 yds^3 of hazardous soil

Scope of Work

- Demolition of Bldg. 1659 Family Recreation Center, associated skeet range & car site structures & perimeter f
- Site perimeter monitoring fo lead-contaminated particulat emissions

- Removal of unknown hazardous material containers uncovered during excavation
- Site restoration including 11,000 CY of backfill & compaction, site sodding & 6,350 LF of perimeter fencing
- Construction of new campground sites

Complexity & Hazards of Work

- Project site surrounded by sensitive/public areas:
  - Active family campground (families, children & pets)
  - Active runway
  - Active Firing Range (pistols through M-60 machine guns)
  - Sensitive habitat adjacent to canal & lagoon (manatees, dolphins, ospreys, mangroves)
- Unknown buried containers requiring Level “B” operations
- Heat-stress monitoring for work conducted from May through November 2002 with personnel wearing protective clothing
- OSHA HAZWOPER standard compliance-training, medicals, PPE requirements

Complexity & Hazards of Work

- Compliance with OSHA Lead Standard
- Lead in soils ranging from 50,300 mg/kg (approx. 5%) to 234 mg/kg
- Personnel dust monitoring using real-time aerosol monitor (RAM)
  - Excavation, stockpiling & load-out activities
  - RAM action level based on maximum lead soil concentration
  - Required dust control measures to prevent personnel lead exposures above the lead action level
- All project personnel were provided lead awareness training

Complexity & Hazards of Work

- Traffic management of over 1,383 end-dump tractor trailer
- General public site access control
- Lead-contaminated dust emiss monitoring & dust control
- Decon operations of truck/equipment & personnel
- Excavation in & around utilities, including 85-foot-tall boresite tower/antenna & associated guy wires/cables
- Hot work
- Utility disconnects

Implemented Controls & Processes

H&S Planning/Implementation

- Had Project Health & Safety Plan (HSP) for compliance w/HAZWOPER & Lead Standard
- Detailed **hazard analysis** for each project phase in HSP
- Prequalified subcontractors based on safety performance
- Required subcontractors to have **SOW-specific HSP**
- Completed Activity Hazard Analysis (AHAs) for every definable feature of work executed
- Held **daily** safety meeting with Pre-Task Safety Plans for each work crew
- Had **daily** communication & coordination of

Implemented Controls & Processes

H&S Planning/Implementation

- CCI prepared & implemented HSP amendments for **unanti hazards, buried containers tub grinder/chipper**
- Full-time CCI SSC enforced C & sub HSPs/AHAs
- Sub supervisor served as com person for construction activities
- Sub documented equipment operator qualifications
- SSC completed activity-specific H&S checklists **weekly** for excavation, heavy equipment, demolition
- Drug-Free Workplace Program is in place & implemented for CCI & all subs
- Implemented Behavior Based Loss Prevention System (BBLPS) on the project

Behavior Based Loss Prevention System

Activity Hazard Analysis (AHA)	**Each project phase** has description & sequence of work, equipment used, hazards, control measures, required training & inspections
Pre-Task Safety Plan (PSTP)	Crew supervisor completes PTSP & reviews tasks, hazards & control measures with crew before work **each day**
Loss Prevention Observation (LPO)	Observes selected work activity, compares actual work process against established safe work procedures (AHAs)
Loss Investigation (LI)/ Near Loss (NLI)	**All** near loss, personal injury, loss incidents w/CCI or subs reported & investigated; corrective actions implemented to prevent incident reoccurrence

Implemented Controls & Processes

Excavation/Heavy Equipment/Demolition Operations

- Excavation permits issued by Base Civil Engineering with all Base utilities cleared for intrusive activities
- 85-foot-tall boresite tower/antenna inside excavation area required special attention & visual control of guy wires/cables
- Erosion control measures inspected daily to ensure H&S of adjacent canal, lagoon & wildlife
- Special flight line training, airfield waiver clearances & daily communication with Base Operations at Patrick AFB to conduct our operations in a safe manner
- Qualified equipment operators completed daily heavy equipment inspections
- Sub completed pre-demolition survey, demolished building using heavy equipment; material load-out & disposal at an approved offsite disposal facility
- Heavy rains & daily lightning storms required site work to cease for safety

Implemented Controls & Processes

Unknown Hazardous Materials Containe

- Stopped work when unanticipated hazards were encountered
- Revised HSP w/hazards & control measures for unknown containers for CIH & USACE approval
- Used air monitoring/Level B equipment & modified heavy equipment for blast protection
- Performed **remote handling & crushing** of buried unknown containers using heavy equipment provided with blast protection & Level B
- Conducted Level B sampling with SCBAs, 5-minute egress bottles, air lines & cascade system w/Grade D breathing air & chemical protective clothing
- Monitored personnel & work area for “Immediately Dangerous to Life & Health” (IDLH) conditions; used real-time direct-reading air monitoring instruments (LEL/02, PID, H2S,HCN)
- Set instrument action levels to 50% IDLH atmospheres for operation shutdown to allow vapors to vent before continuing operations

Implemented Controls & Processes

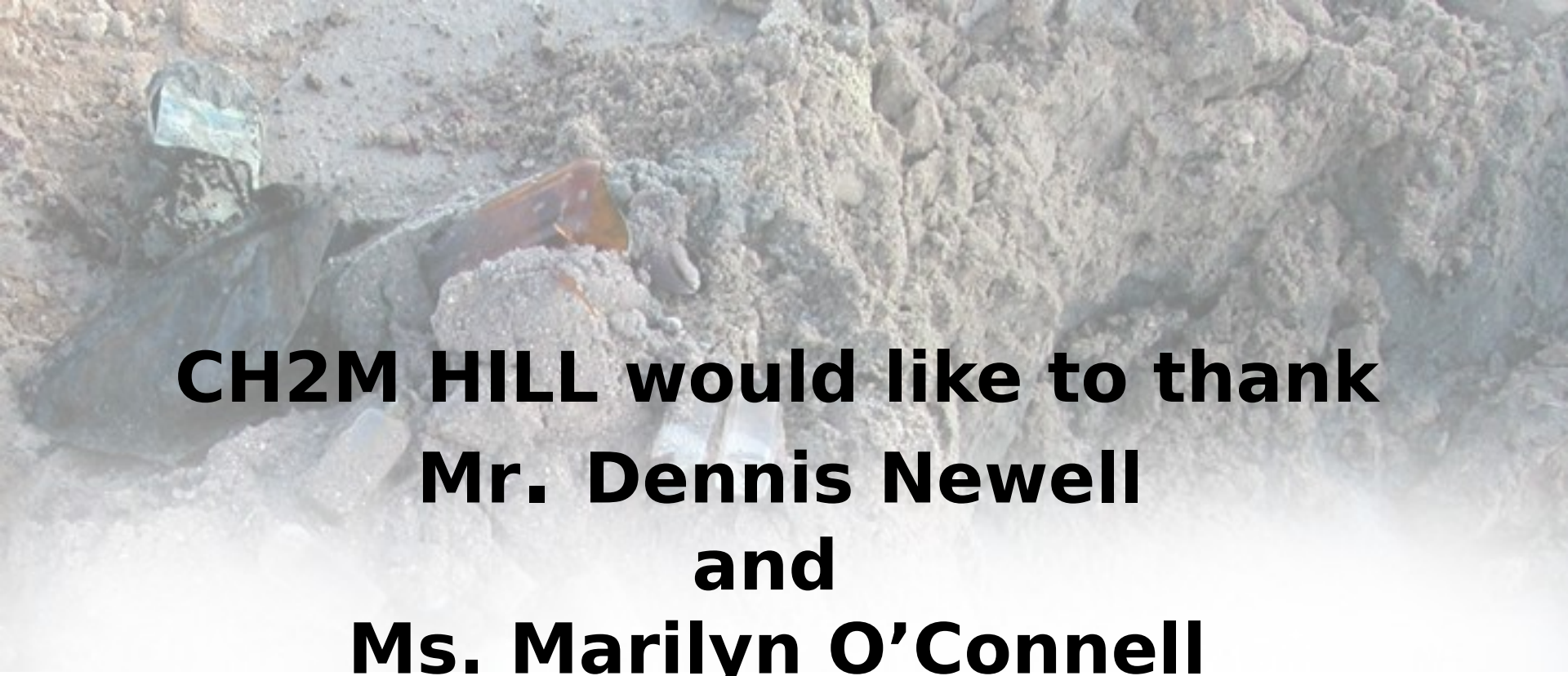
- **Protection of Public Health**
  - Noise controls & particulate emissions/dust controls implemented for nearby campground families
  - Proactive communication with Base Security Forces/Police at Patrick AFB
  - Traffic management plan

Implemented Controls & Processes

- **Advanced planning & ongoing communication** with USACE & Patrick AFB personnel, including:
  - USACE Representatives
  - Security Forces/Police
  - Civil Engineering
  - Base Environmental
  - Base Operations
  - Family Campground Host/Maintenance Staff
  - Base Air Traffic Control Tower
  - Adjacent Campground Guests

Celebrate Safety

- Project was comple
  with over 9,000
  man-hours &
  no lost-time accide
- CCI used Behavior
  Based Loss Prevention System to confirm & maintain safety & quality.



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and

Ms. Marilyn O'Connell

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